

IN THE SPECIFICATION

Please replace the Abstract of the Disclosure with the amended Abstract as follows: (a clean version of the amended Abstract is provided herewith on a separate sheet)

--~~The disclosure relates to zinc~~ Zinc oxide-based sorbents, and processes for preparing and using them are provided, wherein the. ~~The~~ sorbents are preferably used to remove one or more reduced sulfur species from gas streams. The sorbents ~~comprise~~ contain an active zinc component, optionally in combination with one or more promoter components and/or one or more substantially inert components. The active zinc component is a two phase material, consisting essentially of a zinc oxide (ZnO) phase and a zinc aluminate ( $\text{ZnAl}_2\text{O}_4$ ) phase. Each of the two phases is characterized by a relatively small crystallite size of typically less than about 500 Angstroms. Preferably the sorbents are prepared by converting a precursor mixture, ~~comprising~~ containing a precipitated zinc oxide precursor and a precipitated aluminum oxide precursor, to the two-phase, active zinc oxide containing component. --

Please replace the paragraph beginning at page 6, line 3, with the following rewritten paragraph:

--The sorbent compositions of the invention comprise an active zinc component, optionally in combination with one or more promoter components and/or one or more substantially inert components. The active zinc component preferably constitutes at least about 75 wt% (weight percent), more preferably at least about 80 wt%, even more preferably at least about 90 wt%, and yet more preferably at least about 95 wt%, of the sorbent composition. The active zinc component is a two phase material, consisting essentially of a zinc oxide (ZnO) phase and a zinc aluminate ( $\text{ZnAl}_2\text{O}_4$ ) phase. Each of the two phases is uniformly distributed throughout the active, sorbent particles, and each of the two phases is characterized by a relatively small crystallite size of typically less than about 500 Angstroms and preferably less than 400 Angstroms, more preferable less than about 350 Angstroms, as determined by x-ray diffraction line broadening analysis. Advantageously, the total zinc oxide content of the active zinc component is an amount, calculated as "total ZnO" (which

includes both uncombined zinc oxide, i.e., the zinc oxide which constitutes the zinc oxide phase, and combined zinc oxide, i.e., the ZnO content of the zinc aluminate phase wherein  $\text{ZnAl}_2\text{O}_4$  is taken to be the combination of ZnO and  $\text{Al}_2\text{O}_3$ ), of at least about 50 wt%, up to about 80 wt%, preferably at least about 58 wt% up to about 80 wt%, based on the total weight of the active zinc component. Stated differently, the active zinc component includes at least about 10 wt% uncombined zinc oxide (corresponding to the zinc oxide phase, alone), up to about 65 wt% uncombined zinc oxide, preferably about 20 wt% to about 40 wt% uncombined zinc oxide. Preferably the sorbent composition is substantially free from any binder and/or other chemically inert material.--

Please replace the paragraph beginning at page 8, line 10, with the following rewritten paragraph:

--Preferably, the sorbent compositions of the invention are substantially ~~spheroidal~~ spherical particles having sizes in the range of from 35 to 175 micrometers ( $\mu\text{m}$ ), preferably from 40  $\mu\text{m}$  to 150  $\mu\text{m}$ , more preferably from 40  $\mu\text{m}$  to 120  $\mu\text{m}$ , as determined by conventional screening processes.--

Please replace the paragraph beginning at page 14, line 16, with the following rewritten paragraph:

--In a preferred embodiment of the invention, the slurry is further treated with sufficient strong acid to reduce the pH to less than 4.5, preferably to 4.0 to 4.3. Reducing the slurry pH to below 4.5, preferably to 4.0 to 4.3, before spray drying has been found to significantly improve the attrition properties of the sorbent. The slurry is spray dried using conventional processes and apparatus to form substantially ~~spheroidal~~ spherical spray dried particles.--

Please replace the paragraph beginning at page 15, line 23, with the following rewritten paragraph:

--In one preferred aspect of the invention, the zinc-oxide based sorbent is prepared by the following steps. Prepare an aqueous solution containing zinc nitrate and aluminum nitrate in amounts corresponding to adjusted weight percent of 58 wt% ZnO to 42 wt%  $\text{Al}_2\text{O}_3$ , with 8 to 9 wt % as zinc metal. Prepare an ammonium hydroxide solution (14.8 N) in a separate

container, and pump the two solutions into a well stirred container at a controlled flow rate to precipitate the zinc oxide and aluminum oxide precursors at a pH of  $6.0 \pm 0.2$  at room temperature. Wash the precipitate with deionized water using pressure or vacuum filtration to remove excess  $\text{NH}_4\text{OH}$  and form a wet cake. Add sufficient distilled water to reslurry the cake to provide a slurry with a zinc metal content of 7 to 8 wt %. Then add sufficient concentrated nitric acid to bring the pH down to 4.0 to 4.2. Spray dry the resultant slurry in a drying chamber with an air outlet temperature of 350 to 360°F to produce ~~microspheroidal~~ microspherical particles of a size in the range of 50 to 255  $\mu\text{m}$ . Calcine the spray dried particles in air at 650°C for 2 hours to shrink the particles to a size in the range of 35 to 175  $\mu\text{m}$ , and convert the zinc oxide and alumina precursors into zinc aluminate and zinc oxide.